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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,781	10/29/2001	Andrew R. Ferlitsch	SLA.1031	5371
7590	06/15/2005		EXAMINER	
Scott C. Krieger, Patent Counsel Sharp Laboratories of America, Inc. 5750 NW Pacific Rim Boulevard Camas, WA 98607			MURPHY, DILLON J	
			ART UNIT	PAPER NUMBER
			2624	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/002,781	FERLITSCH, ANDREW R.	
	Examiner	Art Unit	
	Dillon J. Murphy	2624	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 October 2001.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 February 2002 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/13/2002</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: #14 (Out Tray 1 in fig 1, fig 2, and fig 3), #16 (Tray 2 in fig 3), and #36 (Out Tray 1 in fig 4 and fig 5). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 18 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Computer instructions in electronic transmissions claimed as computer listings per se, are not statutory.

An acceptable, statutory example is claim 17, where a computer readable medium stores instructions.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4-6, 8-11, 13, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeda (US 6,229,622).

Regarding claim 1, Takeda teaches a method interleaving print jobs comprising: Selecting a plurality of original print jobs for printing (Takeda, col 5, ln 11-52, print jobs stored in memory, with each job corresponding to an indices "X," indicating a plurality of jobs), breaking down said original print jobs into smaller sub-jobs (Takeda, col 5, ln 11-52, print jobs are broken into smaller sub-jobs of size Px, where Px is the number of pages per sub-job), interleaving said sub-jobs in an alternating sequence, and printing

said sub-jobs in said sequence (Takeda, col 5, ln 11-52, printing operation prints all pages "Px" of sub-job "X," and then moves to next sub-job. When all sub-jobs have been processed, operation loops back to first print job's sub-jobs, thereby printing in an alternating order).

Regarding claim 2, which depends from claim 1, Takeda further teaches a method wherein said selecting, said breaking down and said interleaving are performed at a client computing device (Takeda, col 7, ln 66-67 and col 8, ln 1-4, spooling areas in the printer apparatus are set in various ways by the host computer).

Regarding claim 4, which depends from claim 1, Takeda further teaches a method wherein said selecting, said breaking down and said interleaving are performed at a printing device (Takeda, col 6, ln 52-56, data is spooled, and then processing is performed by CPU #201 in printing apparatus #100 of figure 1).

Regarding claim 5, which depends from claim 1, Takeda further teaches a method wherein said breaking down is performed by a print system component (Takeda, col 2, ln 23-26, processing is performed by printing components in printer which run programs in RAM).

Regarding claim 6, which depends from claim 5, Takeda further teaches a method wherein said print system component is a print processor (Takeda, col 2, ln 23-26, processing is performed by printing components in printer which run programs in RAM. Programs and associated hardware are print processors).

Regarding claim 8, which depends from claim 5, Takeda further teaches a method wherein said print system component is a spooler (Takeda, col 5, ln 9-52, print processing, comprising steps of breaking down, occurs in spool area).

Regarding claim 9, which depends from claim 5, Takeda further teaches a method wherein said print system component is a driver (Takeda, col 2, ln 23-27, program, i.e. driver, controls printing process comprising breaking down method).

Regarding claim 10, which depends from claim 1, Takeda further teaches a method wherein said breaking down results in sub-jobs of approximately equal size (Takeda, col 4, ln 40-44, number of pages, Px, of sub-jobs can be controlled independently for each user or set to be equal for all sub-jobs, col 4, ln 54-55).

Regarding claim 11, which depends from claim 1, Takeda further teaches a method wherein said breaking down results in sub-jobs of approximately equal printing time (Takeda, col 4, ln 44-45, size of sub-jobs may alternatively be set to length of time rather than amount of data).

Regarding claim 13, Takeda further teaches a method for interleaving print jobs, the method comprising:

Receiving a plurality of original print jobs at a print system component (Takeda, col 3, ln 17-20, printer apparatus receives jobs from network via LAN, also col 5, ln 11-15, print jobs stored in memory, with each job corresponding to an indices "X," indicating a plurality of jobs), breaking down said original print jobs into smaller sub-jobs (Takeda, col 5, ln 11-52, print jobs are broken into smaller sub-jobs of size Px, where Px is the number of pages per sub-job), interleaving said sub-jobs in an alternating

sequence, and printing said sub-jobs in said sequence (Takeda, col 5, ln 11-52, printing operation prints all pages "Px" of sub-job "X," and then moves to next sub-job. When all sub-jobs have been processed, operation loops back to first print job's sub-jobs, thereby printing in an alternating order).

Regarding claim 16, Takeda further teaches a system for interleaving print jobs comprising: a receiver for receiving a plurality of original print jobs (Takeda, LAN I/F (interface) #212 of figure 1), a partitioner for breaking down said original print jobs into smaller sub-jobs, and an interleaver for interleaving said sub-jobs in an alternating sequence (Takeda, H/D (Hard drive) #202 comprises spooler area which comprises methods for breaking down and interleaving print jobs. See col 5, ln 11-52, print jobs are broken into smaller sub-jobs of size Px, where Px is the number of pages per sub-job. The printing operation prints all pages "Px" of sub-job "X," and then moves to next sub-job. When all sub-jobs have been processed, operation loops back to first print job's sub-jobs, thereby printing in an alternating order).

Regarding claims 17 and 18, Takeda further teaches a computer readable medium comprising instructions for performing functions within a print system component (Takeda, col 2, ln 23-30, printing operation is performed by program in RAM, while hard drive stores a plurality of applications to be run by CPU), said instructions comprising the acts of: receiving a plurality of original print jobs at a print system component (Takeda, col 2, ln 27-30, via the LAN, print jobs are received by print apparatus and spooled into hard drive. Hard drive is managed by CPU, which runs instructions on a computer readable medium), breaking down said original print jobs into

Art Unit: 2624

smaller sub-jobs (Takeda, col 5, ln 11-52, print jobs are broken into smaller sub-jobs of size Px, where Px is the number of pages per sub-job), interleaving said sub-jobs in an alternating sequence, and printing said sub-jobs in said sequence (Takeda, col 5, ln 11-52, printing operation prints all pages "Px" of sub-job "X," and then moves to next sub-job. When all sub-jobs have been processed, operation loops back to first print job's sub-jobs, thereby printing in an alternating order).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US 6,229,622) and Utsunomiya et al. (US 5,822,500), hereafter referred to as Takeda and Utsunomiya.

Regarding claim 3, which depends from claim 1, Takeda teaches a method of selecting, breaking down, and interleaving print jobs as explained above in the rejection of claim 1. Takeda does not disclose expressly the method wherein the processing actions are performed at a server. Utsunomiya teaches a method of interleaving print jobs wherein the operations are performed at a server (Utsunomiya, col 2, ln 55-57, interleaving processing occurs in external apparatus, which could be an external

server). Takeda and Utsunomiya are combinable because they are from the same field of endeavor of print interleaving.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the server interleaving operations of Utsunomiya with the interleaving operations of Takeda. The suggestion for doing so would have been to provide a printer apparatus and method of controlling the same, in which a later printing job can be executed before an earlier print job is finished, thereby making it possible to improve the efficiency of the overall printing system (Takeda, col 1, ln 32-36), as well as providing centralized control in the form of a server to combine an image processing apparatus which can connect to a plurality of data generating sources (Utsunomiya, col 1, ln 41-43). Therefore, it would have been obvious to combine Utsunomiya with Takeda to obtain the invention as specified in claim 3.

Regarding claim 7, which depends from claim 5, the combination of Takeda and Utsunomiya further teaches a method wherein said breaking down is performed by a print system component which is driver independent. Takeda teaches a method of breaking down print jobs, as explained in the rejection of claim 5 above, and Utsunomiya teaches a method wherein processing is print system components are driver independent (Utsunomiya, col 5, ln 58-67 and col 6, ln 1-11, breaking down of print jobs is performed by CPU, wherein CPU operates driver independently, i.e. without a driver).

Art Unit: 2624

Claim 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US 6,229,622) and Rabjohns et al. (US 5,697,040), hereafter referred to as Takeda and Rabjohns.

Regarding claim 12, which depends from claim 1, Takeda teaches a method of selecting, breaking down, and interleaving print jobs as explained above in the rejection of claim 1. Takeda does not disclose expressly the method wherein said alternating sequence places sub-jobs originating from smaller original print jobs toward the front of the print order. Rabjohns discloses a method of interleaving print jobs wherein smaller jobs are placed toward the front of the print order (Rabjohns, col 6, In 12-18, smaller jobs are interleaved into larger jobs, moving the smaller jobs towards the front of the print order). Takeda and Rabjohns are combinable because they are from the same field of endeavor of print interleaving.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the method of inserting smaller print jobs towards the front of the print order of Rabjohns with the method of selecting, breaking down, interleaving, and printing sub-jobs in an alternating sequence of Takeda. The suggestion for doing so would have been to provide a printer apparatus and method of controlling the same, in which a later printing job can be executed before an earlier print job is finished, thereby making it possible to improve the efficiency of the overall printing system (Takeda, col 1, In 32-36), and to blend images of a second job with the images of a first job during the first job processing (Rabjohns, col 2, In 8-11), especially when said second job is smaller in length than said first job. Therefore, it would have been

obvious to combine Rabjohns with Takeda to obtain the invention as specified in claim 12.

Regarding claim 14, the combination of Takeda and Rabjohns further teaches a method for reducing delay of smaller print jobs in a print queue, said method comprising: receiving a plurality of original print jobs at a print system component (Takeda, col 3, ln 17-20, printer apparatus receives jobs from network via LAN, also col 5, ln 11-15, print jobs stored in memory, with each job corresponding to an indices "X," indicating a plurality of jobs), said plurality of original print jobs comprising at least one larger print job and at least one smaller print job (Rabjohns, col 6, ln 12-18, smaller jobs are interleaved into larger jobs, moving the smaller jobs towards the front of the print order); breaking down said larger original print job into smaller sub-jobs (Takeda, col 5, ln 11-52, print jobs are broken into smaller sub-jobs of size Px, where Px is the number of pages per sub-job); interleaving said sub-jobs with said smaller original print job in an alternating sequence, and printing said sub-jobs and said smaller original print job in said sequence (Takeda, col 5, ln 11-52, printing operation prints all pages "Px" of sub-job "X," and then moves to next sub-job. When all sub-jobs have been processed, operation loops back to first print job's sub-jobs, thereby printing in an alternating order).

Regarding claim 15, which depends from claim 14, the combination of Takeda and Rabjohns further teaches a method further comprising breaking down said smaller original print job into smaller sub-jobs and wherein said interleaving comprises interleaving said smaller sub-jobs from said larger print job with said smaller sub-jobs from said smaller print job (Takeda, col 5, ln 11-52, print jobs are broken into smaller

sub-jobs of size Px, where Px is the number of pages per sub-job. Also see Rabjohns, col 7, ln 7-19, both small and large jobs are broken into smaller sub-jobs and interleaved to improve printer efficiency).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Shima et al. reference, US 6,545,766, filed February 17, 1998, is cited for teaching a printing system and method wherein smaller print jobs are interleaved with larger print jobs. Sub-jobs can be broken down by job length, or time required for printing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dillon J. Murphy whose telephone number is (571) 272-5945. The examiner can normally be reached on M-F, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



DAVID MOORE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

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